

SUPPORT FOR THE AMENDMENT

Support for the amendment to claim 1 is found on page 17, lines 1-3, page 18, lines 1-2, page 21, lines 9-15, page 22, lines 21-25 of the specification, in examples 1 and 2, and in claim 6 as previously presented. No new matter would be added to this application by entry of this amendment.

Upon entry of this amendment, claims 1, 4 and 8 will now be active in this application with claims 1 and 4 being under active consideration.

### REQUEST FOR RECONSIDERATION

The claimed invention is directed to a hair shampoo composition.

Applicants wish to thank examiner DelCotto for the helpful and courteous discussion held with their U.S. representative on July 31, 2008. At that time, applicants' U.S. representative argued the demonstration of improved foaming properties. The following is intended to expand upon the discussion with the examiner.

Hair shampoo detergent compositions containing alkyl ether sulfates have been used based on their pleasant feeling upon cleansing but can suffer from inferior foaming speed relative to alkyl sulfates of which they are an improvement over. Shampoo compositions which foam quickly yet have a pleasant feeling as well as have a conditioning effect on hair are sought.

The claimed invention addresses the problem by providing a hair shampoo composition comprising 0.5 to 2 wt. % of a specific amphipathic amide lipid, 7 to 10 wt. % of an ethylene oxide ether sulfate having a specified distribution of ethylene oxide units, and 0.1 to 1 wt. % of a cationic polymer of a cationic cellulose derivative and/or cationic guar gum derivative, wherein the composition has a diluted pH of 3-4. Applicants have discovered that when the ethylene oxide ether sulfate has at least 70 wt.% or greater of sulfates where  $a=0-2$ , that the composition provides good shampoo performance in terms of foaming speed. Such a hair shampoo composition is nowhere disclosed or suggested in the cited art of record.

The rejections of claims 1, 4 and 6 under 35 U.S.C. § 103(a) over various combinations of WO 97/35548 and EP 1,166,766 in view of Hoshowski et al. U.S. 5,137,715 are respectfully traversed.

#### *No Suggestion of Improved Foaming Speed*

Notwithstanding the deficiencies of the cited references to disclose the claimed pH and ethylene oxide distribution, applicants observe an improvement in foaming speed when

the composition of the sulfate surfactant is as claimed, an improvement which is not suggested in the cited references.

The examiner's attention is again directed to the data appearing in Table 2 on page 29 of the specification. The data compares the foaming speed of compositions containing both the amphipathic amide lipid and a sulfate as claimed as compared with a sulfate which has less than 70 wt.% of alkyl ether sulfate as claimed nor the claimed distribution of sulfate where a=0, a=1 and a=2. For the examiner's convenience, Table 2 in the specification is reproduced below.

Table 2

(wt.%)

		Examples			Comparative Examples		
		1	2	3	1	2	3
(A)	Amphipathic amide lipid A	2	2	-	-	2	2
	Amphipathic amide lipid B	-	-	2	-	-	-
(B)	Sulfate 1	10	-	10	10	-	-
	Sulfate 2	-	10	-	-	-	-
	Comparative sulfate 1	-	-	-	-	10	-
	Comparative sulfate 2	-	-	-	-	-	10
Others	Dimethylpolysiloxane emulsion *1	2	2	2	2	2	2
	Myristyl alcohol	1	1	1	1	1	1
	Cocoylmonoethanolamide	0.5	0.5	0.5	0.5	0.5	0.5
	Ethylene glycol distearyl ester	1	1	1	1	1	1
	Cationic hydroxyethylcellulose	0.3	0.3	0.3	0.3	0.3	0.3
	Cationic guar gum	0.5	0.5	0.5	0.5	0.5	0.5
	Malic acid	1	1	1	1	1	1
	50 wt.% NaOH aq. soln/50 wt.% citric acid	q.s.*2	q.s.*2	q.s.*2	q.s.*2	q.s.*2	q.s.*2
	Purified water	Bal- ance	Bal- ance	Bal- ance	Bal- ance	Bal- ance	Bal- ance
pH		3.5	3.5	3.5	3.5	3.5	3.5
Buffering capacity (NgOH-gram equivalent/L)		0.01	0.01	0.01	0.01	0.01	0.01
Evalu- ation	Foaming speed	A	A	A	C	C	C
	Lubricated feeling of foam	18	20	20	9	15	7
	Gloss and manageability	19	20	15	6	18	18
	Resilience and strength of hair	20	19	17	9	11	12

\*1: "CF-2460" (trade name; product of Dow Corning Toray Silicone, a 75 wt.% emulsion, average particle size: about 100  $\mu$ m)

\*2: Amount enough for pH adjustment

Comparative sulfate 1 and comparative sulfate 2 have a total amount of sulfate surfactant where a=0-2 of 67.86 and 51.99, far below the claimed amount of at least 70 wt.%. The foaming speeds of these compositions were evaluated to occur from 200 to less than 300 seconds.

In contrast, Examples 1 and 2 containing the same amphipathic amide lipid but sulfates 1 and 2, sulfates having 77.73 and 72.29 wt.% of sulfate surfactant where a=0-2, exhibited foaming speeds **less than 100 seconds**. Applicants further note that **the claims have been amended** to define a content of amphipathic lipid of only 0.5 to 2 wt. % consistent with applicants' demonstrations using 2 wt. % of amphipathic lipid, a content of sulfate surfactant of only 7 to 10 wt. % consistent with applicants' demonstrations using 10 wt. % of sulfate, a content of cationic cellulose derivative and cationic guar gum derivatives of only 0.1 to 1 wt. % consistent with applicants' demonstrations at 0.8 wt.% combined and a pH of only 3-4 consistent with applicants demonstrations at 3.5. Such data is believed to support the breadth of claim 1 as currently amended. Thus, applicants have demonstrated an improved rate of foaming **by selection** of an alkyl sulfate distribution as claimed. As there is no suggestion of such an improvement in foaming speed by selection of the alkyl sulfate composition, the claimed invention is clearly not obvious from these references and accordingly withdrawal of the rejections under 35 U.S.C. § 103(a) is respectfully requested.

In addition to applicants' demonstration of improved foaming properties, the combined disclosures of the cited references fails to describe the claim limitations of pH and ethylene oxide distribution.

*No Disclosure of the Claimed pH*

None of the cited references disclose or suggest a shampoo composition having a pH of from 3-4 at 25°C when diluted to 20 times its weight with water.

Neither WO '548 nor EP '766 disclose composition having a pH as claimed.

“ ‘**548 does not teach** the use of an amphiphatic amide lipid or a composition having **the specific pH** containing an amphiphatic amide lipid, a mixture of alkyl ether sulfate surfactants, and the other requisite components of the composition in the specific amounts as recited by the instant claims.”(page 4 of outstanding official action, emphasis added)

“However ‘**766 does not teach** the use of a mixture of alkyl ether sulfates, a cationic cellulose polymer, or a composition having **the specific pH** containing an amphiphatic amide lipid, a mixture of alkyl ether sulfate surfactants, a cationic polymer, and the other requisite components of the composition in the specific amounts as recited by the instant claims.” (page 6 of outstanding official action, emphasis added)

As such, neither of these cited reference disclose the claim limitation of a pH of from 3-4 at 25°C when diluted to 20 times its weight with water.

The examiner relies upon Hoshowski et al. asserting a pH as claimed for a similar composition.

“Hoshowski et al teach a hair shampoo-conditioner composition including an anionic cleansing surfactant, such as alkyl sulfate or an alkyl ether sulfate, and a polymeric conditioning compound, in a suitable carrier, and having a pH of from about 2.5 to less than 7, to cleanse the hair.” (page 5 of outstanding official action)

Applicants respectfully submit that the pH of the composition of Hoshowski et al. fails to provide motivation to formulate all alkyl ether sulfate containing composition at a pH of from 2.5 to 7, as the pH description of the reference is to provide **a specific chemical environment** for a polymeric cationic conditioning compound.

Hoshowski et al. describes a hair shampoo-conditioner comprising a) an anionic surfactant; b) a polymeric cationic conditioning compound; and c) a suitable carrier at a pH of about 2.5 to 7 (column 1, lines 12-28). The polymeric cationic conditioning compound is **an essential feature** of the composition as it imparts conditioning properties to the hair and does not adversely affect the level of foam generated by the anionic surfactant (column 11, lines 65-68).

However the pH of from 2.5 to 7 is a necessary feature associated with the polymeric cationic conditioning compound (b) to keep it in a cationic form. More specifically,

Hoshowski et al. states:

“at a pH of from about 2.5 to less than 7, the compound of general structure formula (I) is **cationic in nature.**” (Column 12, lines 22-23)

“Furthermore, surprisingly and unexpectedly, even when a low amount of anionic cleansing surfactant is included in the composition, the presence of the polymeric conditioning compound, even **in its cationic form at a pH of from about 2.5 to less than 7**, does not adversely affect the generation of an acceptable and stable foam level, thereby ensuring consumer acceptance.” (column 11, lines 55-62)

“In general, a sufficient amount of acid is added to neutralize the polymeric amidoamine compound and to adjust the final pH of the hair-treating composition to within a range of **from about 2.5 to less than 7; preferably in a pH range of from about 2.5 to about 6; and to achieve the full advantage of the present invention in a pH range of from about 2.5 to about 5.5**” (column 13, lines 58-65)

It is clear that in order to get compatibility of the anionic surfactant with the polymeric amidoamine, the amidoamine must be in a cationic form (e.g. pH from 2.5 to 7). Thus, the only reference relied upon by the examiner for a disclosure of pH, provides an acidic pH in order to keep the amidoamine component in a cationic state. However, this disclosure does not provide motivation to formulate all alkyl ether sulfate surfactant containing compositions to a pH of from 2.5 to 7, but rather only those compositions which contain a polymeric amidoamine with which compatibility with an anionic surfactant is sought. As an amidoamine is not a disclosed component of either WO '548 or EP '766 there would be no motivation to formulate either composition to a pH of from 2.5 to 7, based on the disclosure of Hoshowski et al.

Since there is no motivation to formulate all alkyl ether sulfate surfactants to a pH of from 2.5 to 7, the claimed invention which recites a combination of amphoteric amide lipid, ethylene oxide sulfate surfactant and cationic polymer, at a pH of from 3-4 when diluted 20 times is clearly not obvious.

There simply is no reference of record to suggest the claim limitation of a pH of 3-4 at 25°C when diluted to 20 times its weight with water. Withdrawal of the rejections under 35 U.S.C. §103(a) is respectfully requested.

*No Disclosure Of A Composition Containing Ethylene Oxide Ether Sulfates Having Claimed Distribution of  $a=0$ ,  $a=1$ ,  $a=2$  and At Least 70 Wt.% Of Sulfates Where  $a=0-2$*

Notwithstanding the failure of the cited references to disclose or suggest the claimed pH, none of the cited references disclose or suggest a composition containing ethylene oxide ether sulfates having at least 70 wt.% of sulfates where  $a=0-2$ .

None of the references suggests a sulfate composition having at least 70 wt.% of the sulfates where  $a=0-2$  nor 30-45 wt.% of sulfate where  $a=0$ , 17-27 wt.% of sulfate where  $a=1$  and 10-20 wt.% of sulfate where  $a=2$ .

WO '548 at page 6, lines 4-5 merely describes an alkyl ether sulfate where the number of ethylene oxide units range from 1-8 wherein the composition comprises less than about 5%, preferably less than about 3% and most preferably less than about 2% of alkyl sulfate ethoxylated surfactant having less than 1 mole of ethoxylation." (page 5, lines 26-31). This reference fails to suggest an amount of at least 70 wt.% of sulfate where  $a=0-2$  nor quantify the amounts as claimed of sulfate where  $a=0$ ,  $a=1$  and  $a=2$ .

EP '766 generically describes a dermatologic composition which generically contains surfactants such as anionic, cationic, nonionic or amphoteric surfactants such as alkyl ether sulfate, alkyl sulfate or olefin sulfonate (paragraph [0022]). This reference fails to suggest an amount of at least 70 wt.% of sulfate where  $a=0-2$  nor quantify the amounts as claimed of sulfate where  $a=0$ ,  $a=1$  and  $a=2$ .

In contrast, the claimed invention is directed to a hair shampoo composition in which a sulfate surfactant comprises 30-45 wt.% of sulfate where  $a=0$ , 17-27 wt.% of sulfate where

a=1 and 10-20 wt.% of sulfate where a=2, the balance of sulfates are where a=3 or greater, and an amount of at least 70 wt.% of alkyl sulfates exhibiting a=0-2.

*A Broad Genus Does Not render Obvious Specific Species*

The disclosure of WO '548 of ethylene oxide units range from 1-8 is simply too broad to suggest the narrow claim limitation of 30 to 45 wt. % of the sulfate exhibiting a=0, from 17 to 27 wt. % of the sulfate exhibiting a=1, from 10 to 20 wt. % of the sulfate exhibiting a=2, and the balance of the sulfates exhibiting a=3 or greater; and contain the sulfates exhibiting a=0 to 2 in an amount of 70 wt. % or greater based on the total sulfates. There is nothing in the reference to suggest such a distribution of ethylene oxide unit substitution. There is no motivation or suggestion to adjust the ethylene oxide unit distribution to that claimed. The claimed distribution is neither inherent nor suggested.

Consider the size of the prior art genus, bearing in mind that size alone cannot support an obviousness rejection. See, e.g., *Baird*, 16 F.3d at 383, 29 USPQ2d at 1552 (observing that "it is not the mere number of compounds in this limited class which is significant here but, rather, the total circumstances involved"). There is no absolute correlation between the size of the prior art genus and a conclusion of obviousness. *Id.* Thus, the mere fact that a prior art genus contains a small number of members does not create a *per se* rule of obviousness. **Some motivation to select the claimed species or subgenus must be taught by the prior art.** See, e.g., *Deuel*, 51 F.3d at 1558-59, 34 USPQ2d at 1215 ("No particular one of these DNAs can be obvious unless there is something in the prior art to lead to the particular DNA and indicate that it should be prepared."); *Baird*, 16 F.3d at 382-83, 29 USPQ2d at 1552; *Bell*, 991 F.2d at 784, 26 USPQ2d at 1531 ("Absent anything in the cited prior art suggesting which of the  $10^{36}$  possible sequences suggested by Rinderknecht corresponds to the IGF gene, the PTO has not met its burden of establishing that the prior art would have suggested the claimed sequences."). (M.P.E.P. 2144.08 II A(4)(a) emphasis added)

The specificity of the claim limitations of 30 to 45 wt. % of the sulfate exhibiting a=0, from 17 to 27 wt. % of the sulfate exhibiting a=1, from 10 to 20 wt. % of the sulfate exhibiting a=2, and the balance of the sulfates exhibiting a=3 or greater; and contain the sulfates exhibiting a=0 to 2 in an amount of 70 wt. % or greater based on the total sulfates, in view of vast generic disclosure of "ethoxylated alkyl sulfate surfactant having from about 1 to



about 8 moles of ethoxylation” precludes a conclusion of obviousness. There is nothing in the cited references to point one in the direction of an alkyl ether sulfate having 30-45 wt.% a=0, 17-27 wt. % a=1, 10-20 wt. % a=2 the balance being 3 or greater and the amount of a=0-2 being 70 wt. % or greater. To the contrary the reference describes that the composition comprises “less than about 5%, preferably less than about 3% and most preferably less than about 2% of alkyl sulfate ethoxylated surfactant having less than 1 mole of ethoxylation.” (page 5, lines 29-31). This would suggest limiting the amount of ethoxylated surfactant where a=0, rather than to ensure a sulfate surfactant having an amount of a=0 of 30-45 wt. %.

*There is No Motivation Or Suggestion To Adjust the Distribution of Ethylene Oxide Units*

There is nothing in the cited reference to suggest modification of the distribution of ethylene oxide units to be as claimed. Again, the disclosure of the reference is generic to have ethylene oxide units ranging from 1 to 8, without any suggestion of specific percentages of any single member of the genus.

To establish a *prima facie* case of obviousness in a genus-species chemical composition situation, as in any other 35 U.S.C. 103 case, **it is essential** that Office personnel find **some motivation or suggestion** to make the claimed invention in light of the prior art teachings. See, e.g., *In re Brouwer*, 77 F.3d 422, 425, 37 USPQ2d 1663, 1666 (Fed. Cir. 1996) (“[T]he mere possibility that one of the esters or the active methylene group-containing compounds... could be modified or replaced such that its use would lead to the specific sulfoalkylated resin recited in claim 8 **does not make the process** recited in claim 8 **obvious** 'unless the prior art suggested the desirability of [such a] modification' or replacement.”) (quoting *In re Gordon*, 733 F.2d 900, 902, 221 USPQ 1125, 1127 (Fed. Cir. 1984)) (M.P.E.P. 2144.08 II A emphasis added)

As there is no suggestion in the reference to suggest the specifically quantified amounts of sulfates where a=0, a=1 and a=2, the claimed invention is clearly not rendered obvious from the disclosures of these references.

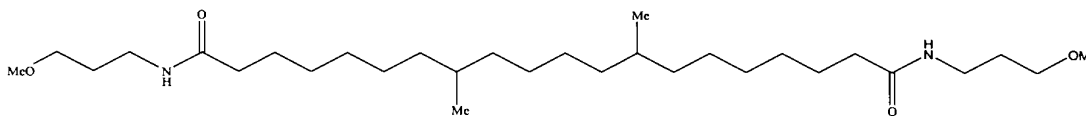
As there is no suggestion in the reference to suggest an amount of at least 70 wt.% of sulfates where  $a=0-2$  nor the specifically quantified amounts of sulfates where  $a=0$ ,  $a=1$  and  $a=2$ , the claimed invention is clearly not rendered obvious from the disclosures of these references. It clearly would not have been obvious to have selected such a distribution and degree of ethoxylation and accordingly withdrawal of the rejections under 35 U.S.C. §103(a) is respectfully requested.

The provisional rejections of claims 1, 4 and 6 under the judicially created doctrine of obvious-type double patenting over claims 1-21 of U.S. 10/743,836 and claims 1-10 of 11/245,071 are respectfully traversed.

U.S. '836 fails to claim an ethylene oxide sulfate distribution as claimed. None of claims 1-21 of U.S. '836 claim anything more than an anionic surfactant as component (B). There is no suggestion of a sulfate surfactant having an ethylene oxide distribution as claimed. Further applicants have demonstrated improved foaming properties when the ethylene oxide distribution is as claimed. As the cited application fails to claim an ethylene oxide sulfate distribution, the claimed invention would not have been obvious. Withdrawal of this provisional rejection is respectfully requested.

*U.S. '071 Fails To Claims An Amphipathic Amide Lipid As Claimed*

The current claims recite a specific structure of amphipathic amide lipid as follows:



Such an amphipathic amide lipid is nowhere claimed in U.S. '071. As the specific amphipathic amide lipid is not claimed in the cited application, the provisional rejection for obviousness-type double patenting is improper and must be withdrawn.

Further, U.S. '071 fails to claim a cationic polymer of either cationic cellulose derivative or cationic guar gum derivative. None of claims 1-7 and 10-20 claim a cationic polymer and accordingly can not render obvious the claimed invention in which a cationic polymer is a claim element.

Further, none of claims 1-7 and 10-20 of U.S. '071 claim a pH of from 3-4 and accordingly can not render obvious the claimed invention in which this pH is a claim element.

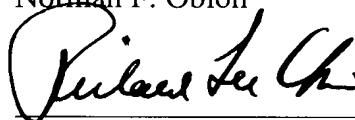
Even further none of claims 1-7 and 10-20 of U.S. '071 claim an ethylene oxide ether sulfate distribution as claimed.

The current claims recite an alkyl ether sulfate having 30-45 wt.% a=0, 17-27 wt. % a=1, 10-20 wt. % a=2 the balance being 3 or greater and the amount of a=0-2 being 70 wt. % or greater. Such a sulfate surfactant is nowhere claimed in U.S. '071. As the sulfate surfactant is not claimed in U.S. '071, the provisional rejection for obviousness-type double patenting is improper and must be withdrawn.

Applicants submit that this application is now in condition for allowance and early notification of such action is earnestly solicited.

Respectfully submitted,

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